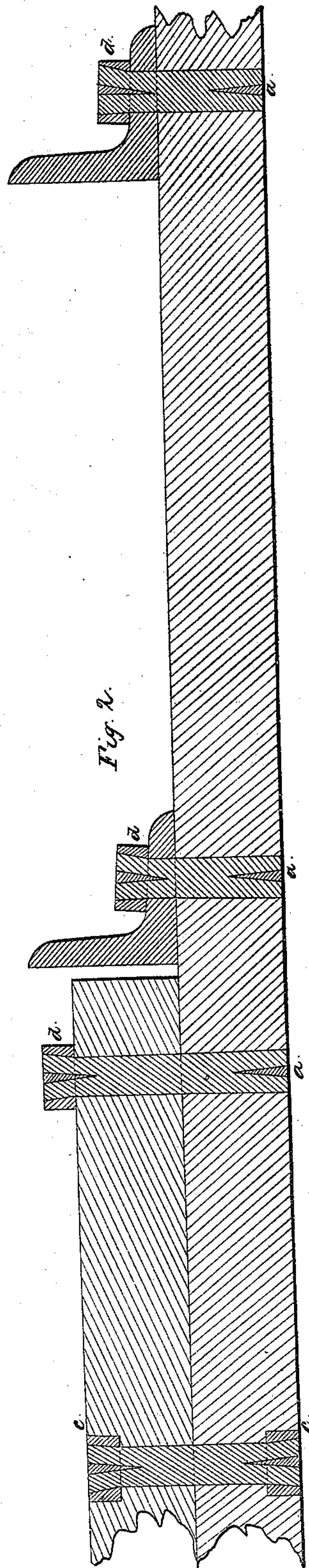
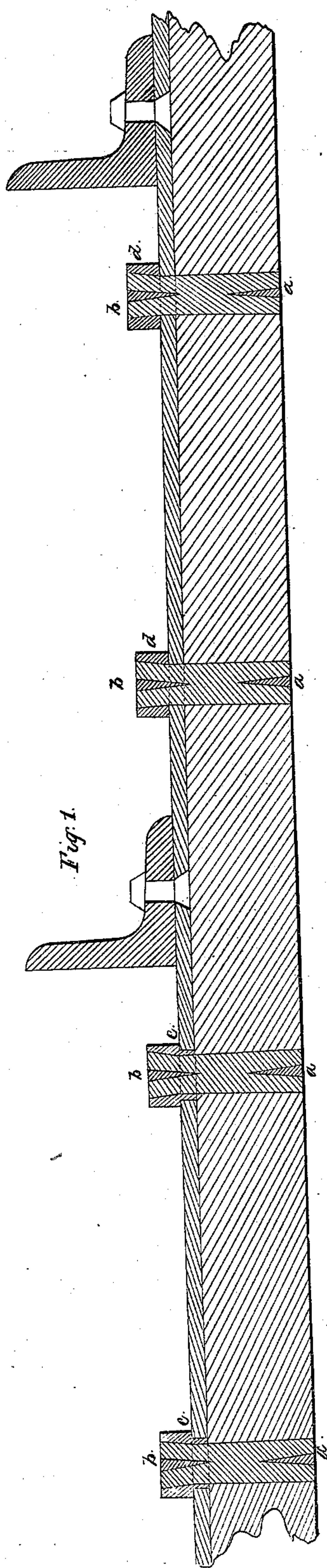


J. Baird.
Building.

N^o 70,151.

Patented Oct. 29, 1867.



United States Patent Office.

JOHN BAIRD, OF NEW YORK, N. Y.

Letters Patent No. 70,151, dated October 29, 1867.

IMPROVED TREENAIL.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, JOHN BAIRD, of the city, county, and State of New York, have invented a new and useful Improvement in Treenails, and that the following is a full, clear, and exact description thereof. In the drawings are two figures showing my improvement in longitudinal section through treenails applied according to the principles of my invention. In

Figure 1 the treenails are exhibited as securing wooden planks to iron plates; in

Figure 2 as securing wood to wood, and wooden planks to iron beams.

My improvement is chiefly applicable to the fastening of wooden sheathing on iron ships, or to securing wooden planks to iron timbers in building composite ships, but is useful in various other ways.

My improvement consists in combining with a treenail a wedge and a socket-head, the latter made of metal, iron by preference, except in copper-fastened wooden vessels, and in that case I prefer to use socket-heads of composition or copper. These socket-heads are to be combined either with one or both ends of the treenail, usually with one end only, and are most useful on that end which is driven through the material, the end which is in advance as the treenail is driven.

Treenails are wooden bolts, made either by hand or machinery, either cylindrical or polygonal in cross-section, or slightly conical, and usually, if not universally, pointed at one end. They are driven into holes bored to receive them, always smaller in diameter than the treenail, and sometimes of different diameter in different parts of their length, being largest at the entering side and smallest on that side of the plank or timber from which the point of the treenail projects when driven home. When driven, both ends are sawed off flush with the timber, or nearly so, and wedges, usually of wood, are driven into each end, as at *aaa*. This method of securing the ends of the treenail answers well on that end which is farthest from the point, but the fastening on the other end is not a sure one. Moreover, treenails, as now used, cannot be employed to secure wood to iron, as the iron beams, straps, &c., of ships are comparatively so thin that the treenails, owing to the want of bearing in contact with the iron, would soon become loose.

In carrying out my invention I procure sockets or rings *bbb*, by preference with a taper bore, and of sufficient thickness to form a flange or head projecting around the treenail, and drive them on the ends of the treenails, and then wedge the treenail, as shown in the drawings, so as to make it fill the cavity of the socket, preferring to use two wedges, one of metal, the other of wood, driven in planes passing through the axis of the treenail, and at right angles to each other. But these wedges may be placed in any other way so long as they cause the treenail to fill the socket when driven. The socket should be driven firmly down against the wood or iron, as at *ddd*, or into a recess or rebate formed in it, as shown at *eee*, and becomes, when the wedges are driven, a metallic head to the treenail, which cannot be drawn through the wood. When the sockets enter a recess in iron, they not only form a head to the bolt, but also make the bearing surface of the metal upon the wood equal to the whole length of the socket. When the sockets are thus used in metal they should be driven hard into the holes in the metal as a bolt is driven. The combination of the socket and wedges with the treenail in fact constitutes a wooden bolt with a metallic head, for the reason that the socket, being inelastic, holds the wood so firmly that it may be condensed by wedging within the socket so as to hold to it much more firmly than to the interior of a hole in compressible or elastic wood, and when the sockets are either tapered on the outside, or made of varying outside diameter and driven into the metal beams, plates, &c., as shown in the drawings, the combination constitutes not only a wooden bolt with a metallic head, but really a bolt partly wood, partly metal on its exterior, and with the metal part bearing against metal.

My new fastening is very useful in applying wooden sheathing to iron ships, or planking in composite ships, as it holds the sheathing or planking sufficiently firm, and presents no metallic connection from the outside of the planking to the iron interior. Such ships may therefore be coppered, with little or no danger of galvanic action between the copper sheathing and the iron frame or plating.

I claim as of my own invention, the new fastening herein described, namely, a treenail combined with a metallic socket, and wedges applied thereto, substantially as specified.

JOHN BAIRD.

Witnesses:

WM. A. LOCKWOOD,

L. W. HEIN.